EDITORIALS

Is It Time for a Fundamental Reexamination of Medical Education?

THE AMERICAN MEDICAL ASSOCIATION has completed and its House of Delegates has adopted a report by the Council on Medical Education entitled "Future Directions for Medical Education." The report has 36 recommendations which address many facets of medical education including specialty training, continuing medical education, practice performance and the training of foreign medical graduates, as well as preparation for medical school and the curricula in medical schools. The Association of American Medical Colleges has just embarked on a three-year study of "the general professional education of the physician—the eight years that include college preparation and medical school." And the Institute of Medicine of the National Academy of Sciences has begun a one-year project to prepare a plan for a major review of medical education in the United States. There is a real need for a reexamination of medical education at this time and these three generic organizations are to be commended for their interest and willingness to have a go at it.

In 1910 a study commissioned by the American Medical Association (to become known as the Flexner Report) firmly rooted medical education in the then nascent biomedical science. This orientation became institutionalized and has persisted. As the amount of biomedical knowledge increased in subsequent decades it became impossible to teach or learn it all in the four-year medical school curriculum, or for any one physician to practice competently throughout the whole gamut of medicine, for that matter. Specialities and specialty training began to appear and this has now become the order of the day, with the result that additional years of training (three to seven) have been added beyond the four years of medical school, and a complex system of specialty boards and specialty training is now in place. Medical knowledge continues to increase (some say it doubles every five to ten years) and the time seems to be coming when further add-ons of years in the formal preparation for practice will become impractical, if indeed this is not already so. Perhaps, as was the case in 1910, there is need once again for a fundamental reexamination of medical education.

It seems that the inexorable and certainly welcome progress in biomedical science has had at least three important effects on medical practice and patient care that have yet to be fully taken into account in medical education. First, there is the sheer mass of medical knowledge now and what may be expected in the future. It has long since been obvious that no medical student or physician can any longer hope to learn or remember all that he or she should know, and furthermore it has become obvious that what needs to be known and used in practice is changing all the time. Especially to deal with the changing nature of medical knowledge, medical education should be viewed and structured more as a continuing process than is the case at present. Second, the specialization in medical education and medical practice that has occurred as a result of the proliferation of reductionist biomedical science has been at the expense of less attention being paid to two factors: (1) the oneness of this science (the interdependencies among the specialties or subspecialties) and (2) the wholeness of the person

whose illnesses or health and well-being are often, if not always, the resultant of complex interactions among the body systems (and this includes the mind) and with the external physical and social environment of the person. It has become all too evident that reductionist medical science alone does not teach all that is needed for good patient care. And third, the development of biomedical science and the implementation of new technology in patient care has had not only human, but social, economic and political ramifications, which now have come to impinge directly and significantly on every physician's practice, in whatever specialty, and upon the health, illness and well-being of patients.

It would seem that the time may have come for medical education to become more efficient in dealing with expanding and changing medical science and to expand its horizons in what amounts to a new era of medical practice and patient care. If it is true that no one can remember or keep up with all of the medical knowledge (especially if its scope is now to include a better understanding of human nature and human behavior and all of the social, economic and political ramifications of medical science as these affect a physician's practice and patient care) then medical education may need to provide a medical student or practicing physician with some kind of a conceptual framework for an awareness of the whole gamut of medical knowledge, and then the skills and tools to retrieve needed specific information, elsewhere than from memory, when and where it is needed. It would be important to teach and learn the skills of what is being called self-directed learning throughout the whole continuum of medical education. If it is true that illness, health and well-being are the resultant of complex interactions among and between the internal and external environments of the mind and the body, then the scope of medical knowledge should be expanded to include an awareness of the capabilities and limitations of all the specialties of medicine that deal largely with the systems of the internal environment and also an understanding of the interaction of persons, both sick and well, with their physical and social environments. And if it is true that social, economic and political forces now impinge significantly on medical practice and patient care, then these too should be taken into account in medical education now and for the foreseeable future.

To accomplish what has been suggested will clearly require some new and quite different approaches in medical education. Changing science and the reality of the oneness of all medical knowledge will surely require that medical education be viewed as a true continuum from the moment of decision to enter medical school through a lifetime of practice. A framework or skeleton of the totality of medical knowledge may need to be constructed and means developed for a self-directed physician or student learner to retrieve up-to-date information when and as needed, and at whatever level of training or practice. And it may be that medical education throughout the continuum should be more patient centered, more problem centered and more learner centered than it now is.

For these as well as other reasons it would seem that a major new approach to medical education is what may be needed rather than some further fine tuning of the present way of doing things.

—MSMW

Fasting

DR. KERNDT AND CO-WORKERS present in this issue an extensive review of the metabolic and clinical changes associated with fasting. Only a single case report forms the nidus of this review, but many of the more important changes of fasting can be seen in this one patient.

During evolution humans have developed exquisite and highly efficient means for dealing with food deprivation.[1] The same, unfortunately, is not true for prolonged periods of caloric excess. This is not surprising. Starvation must have been a formidable evolutionary force in that survival strongly favored those who had an efficient means of storing fuel, mechanisms for using alternative sources of fuel and methods of modulating fuel usage. All of these topics are considered by Dr. Kerndt and colleagues. In attempting to comment on the most clinically relevant parts of this review only a few points can be emphasized. I might add, however, that the role of fasting in accelerating weight loss in obesity is a topic that usually intrigues obese persons—and hence presents a problem to clinicians.

Humans, even when nonobese, have adequate fat stores to meet all caloric needs for two to three months. This is not the problem of a total fast. The critical danger of a prolonged total fast